1. Overview of Exide's industrial verticals

2. Way forward for Exide's business

3. Future readiness of Exide
Exide is the market leader in India

**Widest Portfolio**
- IUPS
- Solar
- Power
- Railways
- Telecom
- Traction (forklift truck)

**Affordable technologies**
- VRLA
- Tubular–flooded/Gel
- Plante
- Advanced Lead Acid–ULTRA
- Lithium (Ready)

**Export Ready**
- 100% owned subsidiaries in Singapore & UK
- Strong presence in Germany
- Portfolio on par with International standards
- Strong focus in both Traction and Standby applications

Exide is the market leader in India
IUPS: Largest business vertical

Market landscape

✓ IUPS used as critical backup across multiple industries

Bank & FI/ATM  Data Centers

Offices  Industry

Product offering

✓ Wide product portfolio

1. Stable Market (7-8% YoY)
2. Widest range of products
3. Buoyant aftermarket
4. > 50% Market share
Our market presence

**Market landscape**

- Market consists of solar power generation units (on and off-grid), and energy storage systems
- Slight market slowdown in 2019, but growth expected due to government policy on renewable energy
- Market is very fragmented

**Product offering**

- Market offering: batteries, (Tubular & Gel), solar panels, inverters and Combo packs – key to winning in industry

1. Market rebound, visible after gloomy 2019
2. Microgrids/Rooftops footprint established
3. Combo packs as growth engine
4. Strong brand in retail channels
5. >60% of our revenue comes from trade channel
Power and projects: Driven by Infrastructure spend

Market landscape
- Market is driven by growth in infrastructure spend
- Market requires technical selling – major barrier to entry

Product offering
- Exide offers Plante batteries unique to this market

1. Unique Portfolio
2. Technical selling as entry barrier
3. Ready for National Infrastructure Pipeline spend in next 5 years
Our market presence

Market landscape

- Market consists of battery powered vehicles like material handling carts, golf carts, etc.
- Market is expected to expand with new applications, e.g., Battery powered vehicles at all airports

Product offering

- Wide range of products available for both BS and DIN standards

1. Motive power application
2. >80% OEM market share due to strong OEM connect
3. New use cases drive growth(Airport baggage handling, aerobridge etc)
**Railways: Driven by Indian Railways**

**Market landscape**
- Significant upgradation of railways expected over next few years
- ESS market exists in both conventional and newer segments of the railways industry

**Product offering**
- Product offering

1. Single Customer
2. Tender environment
3. New coach designs upcoming
**Market landscape**

- Market currently declining
- Consolidation of Operators
- Lower tenancy ratio

**Product offering**

- Product offering

---

1. Consolidation of operators
2. Demand decline
3. Overcapacity leading to price war (60% utilization currently in industry)
4. Focus on profitability over market share
1. Overview of Exide's industrial verticals

2. Way forward for Exide's business

3. Future readiness of Exide
Future outlook across business verticals

**IUPS**
- Market to grow along with corresponding industries, mainly IT
- Automation in manufacturing sector will create growth
- Data center industry is growing at >20%

**Solar**
- Government target of 40 GW of rooftop solar by 2022
- Price reduction of solar modules and Li-ion batteries expected
- Solar + storage expected to reach grid parity by 2024

**Power & projects**
- Growth in industrial index will grow this market segment
- Increase in grid stabilization requirements due to increase in renewable power generation

Source: IESA report, Industry reports
Future outlook across business verticals

**Telecom**
- ✔ Market decline to continue. Demand mainly from replacement
- ✔ Next wave of growth to be led by 5G rollout
- ✔ New tower designs with limited space more suitable for lithium-ion technology

**Railway**
- ✔ Growth expected as Indian Railways moves to new coach designs (LFB coaches)
- ✔ Replacement market intact till existing coaches completely phased out
- ✔ Fresh Govt spend in NIP expected

**Traction**
- ✔ Very dependent on industry growth scenario
- ✔ Impacted by auto slowdown
- ✔ New use cases expected in future – at airports, etc.

Source: IESA report, Industry reports
National Infrastructure pipeline will drive future growth

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Infrastructure &amp; Irrigation</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Transportation &amp; Logistics</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Power, Oil &amp; Gas</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Railways</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Urban &amp; Housing</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>New Technologies &amp; E-Governance</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

Source: Indian National Budget 2020
Market Expansion:
- Plans to establish 12V VRLA in Middle East Asia & Africa
- Penetrate with OPzV/OPzS in Middle East Asia, Europe & Africa
- Traction: Enter new countries in Europe and South America and protect existing Market Share

Expand existing product lines to exports in the following product segments:
- Inverter
- UPS
- Telecom Towers
- Solar
- Power & projects

Launch new products suited to global markets:
- Front Terminal range of Batteries
- Advanced Telecom VRLA
- OPzV Gel

Exports share in Next 2 Years from ~15% to 20%

~15% of revenue in FY20e

20% of revenue in FY22
1. **Overview of Exide's industrial verticals**

2. **Way forward for Exide's business**

3. **Future readiness of Exide**
Thrust on future trends in the industrial battery market

- Ultra technology
- Utility scale energy storage
- Lithium-ion battery technology
UltraBattery®
A New Dimension in Lead Acid Battery Technology

Partnered with leading companies

Hybridization of technologies

Hybrid of capacitors and batteries
- Capacitors can operate at high rates but the amount of energy stored is limited
- Batteries store far more energy but are limited when it comes to power density

Key Benefits

Fast charge
- Exceptional charge acceptance capability

High Efficiency
- Returns more of the energy we store
Utility scale energy storage to be used in multiple segments and applications

Segments of Utility Scale ESS

- **Renewables co-location** (wind & solar)
- **Grid support** (distribution investment deferral)
- **Conventional co-location**
- **Mini-micro grids**

Applications within utility scale ESS

- Energy shifting
- Peak shaving
- PV smoothing
- Voltage regulation
- Frequency regulation
- UPS
- Mini-micro grids
Exide has started piloting multiple utility scale ESS projects

<table>
<thead>
<tr>
<th>Battery technology</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td>Hosur ESS Project (Lead Acid)</td>
<td>Lead Acid Tubular Gel</td>
</tr>
<tr>
<td>Hosur ESS Project (Lithium Ion)</td>
<td>Lithium Ion (LFP)</td>
</tr>
<tr>
<td>Tata Power DDL Project</td>
<td>Lithium Ion (NMC)</td>
</tr>
<tr>
<td>Exide-CESC ESS Project</td>
<td>Lead Acid Tubular Gel</td>
</tr>
<tr>
<td>JU ESS Project</td>
<td>Advanced Ultra VRLA</td>
</tr>
</tbody>
</table>

Planned
## Li-ion market in nascent stage, telecom is the only established application

<table>
<thead>
<tr>
<th>Segment</th>
<th>Market size of li-ion storage –current and expected (MWh)</th>
<th>Expected CAGR</th>
<th>Degree of certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom</td>
<td>580-600 to 1200-1250</td>
<td>9-11%</td>
<td></td>
</tr>
<tr>
<td>Data center</td>
<td>140-160 to 450-600</td>
<td>14-16%</td>
<td></td>
</tr>
<tr>
<td>Renewables co-location (BESS)</td>
<td>600-700 to 2000-2500</td>
<td>20-25%</td>
<td></td>
</tr>
<tr>
<td>UPS</td>
<td>25-30 to 130-140</td>
<td>4-5%</td>
<td></td>
</tr>
<tr>
<td>C&amp;I backup (DG replacement)</td>
<td>Negligible to Negligible</td>
<td>15-18%</td>
<td></td>
</tr>
<tr>
<td>Solar rooftop</td>
<td>Negligible to 200-220</td>
<td>1-2%</td>
<td></td>
</tr>
<tr>
<td>Residential backup</td>
<td>Negligible to 20-40</td>
<td>&lt;1%</td>
<td></td>
</tr>
<tr>
<td>Solar street lighting</td>
<td>40-45 to 45-75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: BCG analysis
Nexcharge plans to focus on telecom, data center and UPS

<table>
<thead>
<tr>
<th>Segment</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Telecom</strong></td>
<td>• Building a li-ion battery solution</td>
</tr>
<tr>
<td></td>
<td>• Advanced discussions with major telecom players for partnerships</td>
</tr>
<tr>
<td><strong>Data center</strong></td>
<td>• Working with major data center players to build a solution</td>
</tr>
<tr>
<td><strong>UPS</strong></td>
<td>• In discussions with UPS players for partnerships</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>• Solutions to be developed based on individual customer requirement</td>
</tr>
</tbody>
</table>
Thank you